REMARKS

Claims 1-11, 13, 14, 16, and 17 are currently pending in the subject application and are presently under consideration. Claims 1, 2, 4, 6, 7, 9, 10, 11, 13, 14, and 17 have been amended as shown on pages 2-5 of the Reply. New claims 18-22 have been added.

Applicant's representative thanks Examiner Janakiraman for the courtesies extended during the telephonic interview conducted on October 28, 2008. During the interview, the Examiner suggested minor additional amendments to independent claim 10 in order to overcome the rejection of that claim under 35 U.S.C. §101. The Examiner's recommendations have been incorporated in the amended claim set herein. The participants also discussed the proposed amendments to overcome the rejections under 35 U.S.C. §103(a) in view of the cited references. Specifically, applicant's representative explained that the present invention can generate a set of domain models *representing a specific document*, and that these generated domain models can be populated with data extracted from the associated document. The Examiner indicated that she would review these amendments in view of the explanations given upon receipt of the Reply.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I.   Rejection of Claims 10 and 11 Under 35 U.S.C. §101

Claims 10 and 11 stand rejected under 35 U.S.C. §101 because the Examiner contends that claimed invention is directed to non-statutory subject matter. Claims 10 and 11 have been amended to address the Examiner's concerns in this regard. It is therefore respectfully requested that this rejection be withdrawn.

II.   Rejection of Claims 1-11, 13-14, 16, and 17 Under 35 U.S.C. §103(a)

Claims 1-11, 13-14, 16, and 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Birsan, *et al.* (US 7,131,066) in view of LawBot ("LawBot: A Multiagent Assistant for Legal Research"), further in view of Zeleznikow, *et al.* ("Integrating the Document Object Model with Hyperlinks for Enhanced Topic Distillation and Information Extraction"). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Birsan, *et al.*, LawBot, and Zeleznikow, *et al.*, individually or in combination, do not teach or suggest each and every feature of the subject claims.

A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. See *KSR v. Teleflex*, 550 U.S. ___, 127 S. Ct. 1727 (2007) citing Graham v. John Deere Co. of Kansas City, 383 U. S. 1, 36 (warning against a "temptation to read into the prior art the teachings of the invention in issue" and instructing courts to "'guard against slipping into the use of hindsight'" (*quoting Monroe Auto Equipment Co. v. Heckethorn Mfg. & Supply Co.*, 332 F. 2d 406, 412 (CA6 1964))).

The subject claims relate to ontological modeling of documents for indexing and searching. A document to be indexed can be analyzed for specific properies or keywords, and one or more domain model objects representing the document can be generated based on the analysis. To this end, a pre-set vocabulary list of keywords of interest can be compared with the document to ascertain if the document contains one or more matching keywords. The type of object created for the document can be dependent on the keywords or other features found in the document. Moreover, upon discovery of a predetermined keyword in the document, a further analysis can be performed to determine a context for the keyword as used in the document. This can facilitate a more accurate modeling when a single keyword may have multiple possible meanings or connotations. This additional analysis can involve identifying additional keywords related to the matching keyword. The resulting domain model object can be a function of both the matching keyword and the additional related keywords. Once created, the domain object model, which can contain computation-ready properties related to the document, can be stored as part of a collection of other such models for subsequent searching and analysis. In particular, amended independent claim 1 recites, *generating a set of domain models that represent the document, the domain models selected to represent the document are a function of the matching keyword and the additional related keyword, and comprise properties relevant to the matching keyword, [and] populating the properties of the set of domain models with corresponding data extracted from the document.*

As conceded in the Office Action, Birsan, *et al.* does not teach or suggest generation of a set of domain models representing documents. The Examiner contends that Zeleznikow, *et al.* remedies this deficiency. Zeleznikow, *et al.* relates to construction of a legal domain ontology for use in searching a legal decision knowledgebase. The Examiner notes in particular that this domain ontology is used to specify a set of domain models that specify a particular domain of

knowledge. However, the cited reference does not disclose that this set of domain models is generated *based on an analysis of specific retrievable documents*, or that these domain models directly represent these documents. Specifically, Zeleznikow, *et al.* does not teach that these domain models are generated by initially searching for keywords (and related keywords) in a document, selecting a set of domain models based on the discovered keywords, and populating the properties of the set of models using data extracted from the document. Rather, the cited reference indicates that the set of domain models are specified using pre-created domain ontology, and therefore are not derived from, or directly represent, retrievable documents.

LawBot is also silent regarding creation of document-specific domain models in this manner. LawBot relates to a search agent used to assist with search and retrieval of legal documents. The search assistant employs an ontology of legal terms that defines relationships between legal synonyms, related words, and related categories. This ontology is used to reformulate queries submitted to the system. However, LawBot does not teach that domain models for a specific document can be generated *based on an analysis of keywords in the document*. While the Examiner indicates that LawBot describes searching a document for keywords, this feature is described in the context of searching for relevant documents in the course of a search and retrieval session, and is not employed to generate one or more domain models representing the document. Moreover, LawBot discloses on page 37 that the aforementioned ontology is generated manually, and as such does not suggest generating an ontological model for a document based on an analysis of keywords found in the document.

Similarly, amended independent claim 9 recites, *searching each of a plurality of documents for the presence of at least one matching keyword from a list of keywords; representing each document with at least one domain model selected based on the matching keyword, the at least one domain model comprising properties relevant to the keyword; [and] populating the properties of each of the at least one domain model with data extracted from the respective documents.* As discussed above, none of the cited references disclose this technique for generating document-specific domain models.

Further regarding analysis of the aforementioned domain models, the subject claims disclose that, upon submitting a query and receiving a set of domain models representing a set of documents, data relating to the collective content of the documents can be gleaned from the properties of the retrieved objects (populated with values from the documents when the models

were generated) using algorithms run against the properties of the domain model. The results of such analysis can generate statistics relating to the collection of retrieved documents as a whole (*e.g.* average success rates of medical treatments, average number of patients involved in clinical trials, *etc.*). To this end, amended independent claim 9 further recites, *identifying a set of the stored domain models that match criteria of the received query; and applying an algorithm to the respective properties of the identified set of domain models to compute a data value relating to the documents represented by the identified set.* Birsan, *et al.* does not disclose performing such an analysis over document-specific domain models to generate data values relating to an associated set of documents. Birsan, *et al.* relates to a method for reformatting a domain model according to directives encoded in a template file. Specific data from a source model is extracted in accordance with the template file, and the extracted data is reformatted into a target data model. With regard to such a collective analysis, the Examiner notes in particular a step of the domain model transformation described in Birsan, *et al.* wherein a node within a model to be transformed is located, and a transformation rule applied to the node. However, transformation of a node within a domain model does not in any way suggest performing a collective analysis over the properties of a *set* of retrieved models representing specific documents in order to derive an overall value relating to the collective documents. LawBot and Zeleznikow, *et al.* fail to remedy this deficiency, since neither of those cited references disclose generation of searchable domain models representing specific documents, and as such do not teach that an analysis can be performed over such domain models to determine a data value relating to the collection of represented documents.

Similarly, amended independent claim 10 recites, ***means for representing the document as a collection of at least one domain model, the domain model selected based at least on the matching keyword and the additional related keywords*** *and having properties relating to the matching keyword; and* ***means for populating the properties of the at least one domain model with values corresponding to properties of the document being represented.*** As discussed *supra*, none of the cited references disclose this technique for generating document-specific domain models.

Amended independent claim 11 discloses similar features, reciting, *search the document for additional keywords related to the matching keyword to determine a context for the matching keyword; selecting at least one domain model to represent the document based on the matching*

keyword and the determined context, the at least one domain model comprising properties relating to the matching keyword and determined context; and populate the properties of the at least one domain model with values corresponding to properties of the document being represented. None of Birsan, *et al.*, LawBot, or Zeleznikow, *et al.* teach or suggest these features, as already discussed.

The subject claims also disclose that a domain model property can be populated, not only with values extracted from the document being represented, but also with other domain models according to the descriptive requirements of the document. In particular, amended claim 2 recites, *when a respective property type for the domain model is of the complex type,* ***selectively adding another domain model as the value for that property according to the document being represented.*** With regard to this type of domain model configuration, the Examiner indicates a section of Birsan, *et al.* describing how the aforementioned template file directives are executed to generate a formatted output from a domain model. However, this cited portion only describes steps performed to transform a domain model according to instructions encoded in the directives. The cited reference does not describe, either at the indicated section or elsewhere, a domain model having at least one property whose value is a disparate domain model.

Also, claim 8 recites, *applying an algorithm to the respective properties of the retrieved collection of domain models to compute a data value relating to the collection,* and as discussed above, none of the cited references disclose performing such an analysis on a collection of document-specific domain models, much less domain models generated *via* the techniques set forth in amended independent claim 1.

In view of at least the foregoing, it is respectfully submitted that Birsan, *et al.*, alone or in combination with LawBot and Zaleznikow, *et al.*, does not teach or suggest all aspects of amended independent claims 1, 9, 10, and 11 (and all claims depending there from), and as such fails to make obvious the present invention. It is therefore requested that this rejection be withdrawn.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [MSFTP1836USA].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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